

Jonathan Bapst, Ph.D.

Contact Information

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Education

Ph.D., 2018, Earth and Space Sciences & Astrobiology, University of Washington, Seattle, WA
B.S., 2010, Mechanical and Aerospace Engineering, State University of New York at Buffalo, Buffalo, NY

Employment

2018 – Present	Postdoctoral Fellow Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA Advisor: Dr. Sylvain Piqueux
2018	Postdoctoral Research Associate Lunar and Planetary Laboratory, University of Arizona Advisors: Dr. Shane Byrne
2010 – 2018	Graduate Research Assistant Department of Earth & Space Sciences, University of Washington (2010-2014) Lunar and Planetary Laboratory, University of Arizona (2014-2018) Advisors: Dr. Shane Byrne, Dr. Joshua Bandfield, and Dr. Stephen Wood Dissertation Title: <i>Mars' Water Cycle Seen Through an Ice Lens</i>
Spring 2014	UW Astrobiology Research Rotation Jet Propulsion Laboratory, Pasadena, CA Advisors: Dr. Steve Vance and Dr. Lance Christensen Project: <i>Tunable Laser Spectroscopy of Short-chained Alkanes</i>
2009 – 2010	Undergraduate Research Assistant Department of Mechanical and Aerospace Engineering, SUNY Buffalo, NY Advisor: Dr. Matthew Ringuette

Refereed Publications (Underlined text includes hyperlink)

Bapst, J., Byrne, S., Brown, A. J., 2018. "On the icy edge at Louth and Korolev craters". *Icarus* 308, 15–26.

Bramson, A.M., Byrne, S., **Bapst, J.**, 2017. "Preservation of Mid-Latitude Ice Sheets on Mars". *J. Geophys. Res. Planets* 122 (11) 2250–2266.

- Sori, M. M., **Bapst, J.**, Bramson, A. M., Byrne, S., Landis, M. E. 2017. "A Wunda-full world? Carbon dioxide ice deposits on Umbriel and other Uranian moons". *Icarus* 290, 1–13.
- Bapst, J.**, Bandfield, J. L., and S. E. Wood. 2015. "Hemispheric Asymmetry in Martian Seasonal Surface Water Ice from MGS TES". *Icarus* 260, 396–408.

Refereed First Author Conference Abstracts

- Bapst, J.**, S. Byrne, J. L. Bandfield and P. O. Hayne. 2018. "Thermal Properties of the North Polar Residual Cap". Oral presentation at Mars Amazonian Climate Workshop, Lakewood, CO.
- Bapst, J.**, S. Byrne and J. L. Bandfield. 2018. "Recent Accumulation of Water Ice at the North Pole of Mars?". Oral session at 49th Lunar and Planetary Science Conference, The Woodlands, TX.
- Bapst, J.**, and S. Byrne. 2017. "Mass Balance of Polar Icy Outliers: Louth and Korolev Craters". Poster session at 48th Lunar and Planetary Science Conference, The Woodlands, TX.
- Bapst, J.**, and S. Byrne. 2016. "Constraining Water Vapor Abundance on Mars using a Coupled Heat-Water Transport Model and Seasonal Frost Observations". P21A-2075, Poster session at AGU Fall Meeting, San Francisco, CA.
- Bapst, J.**, and S. Byrne, 2016. "Mass Balance Estimates of Louth Crater Water Ice and Climatic Implications". Oral session at 6th International Mars Polar Science Conference, Reykjavik, Iceland.
- Bapst, J.**, and S. Byrne, 2016. "Louth Crater Water Ice as a Martian Climate Proxy". Poster session at 47th Lunar and Planetary Science Conference, The Woodlands, TX.
- Bapst, J.**, and S. Byrne, 2015. "Martian Icy Outliers and Climate History". Poster session at 46th Lunar and Planetary Science Conference, The Woodlands, TX. ([E-Poster here](#))
- Bapst, J.**, Bandfield, J. L., and S. E. Wood, 2014. "Mars Dynamic Albedo: Evidence for Widespread Seasonal H₂O Frost in the Northern Hemisphere from TES, HiRISE and THEMIS". Poster session at 8th International Conference on Mars, Pasadena, CA. ([E-poster here](#))
- Bapst, J.**, Bandfield, J. L., and S. E. Wood. 2014. "Investigating the Timing and Extent of Seasonal Surface Water Frost on Mars with MGS TES". Poster session at 45th Lunar and Planetary Science Conference, The Woodlands, TX. ([E-Poster here](#))
- Bapst, J.**, Bandfield, J. L., and S. E. Wood. 2013. "Identifying and Mapping Seasonal Surface Water Frost with MGS TES". P31C-04, Oral session at AGU Fall Meeting, San Francisco, CA. ([Recorded here](#))
- Bapst, J.**, and S. E. Wood. 2013. "Seasonal Release of Water Vapor by Ground Ice on Mars: Implications for Surface Frosts and Atmospheric Water Abundance". Poster session at 44th Lunar and Planetary Science Conference, The Woodlands, TX. ([E-Poster here](#))
- Bapst, J.**, Wood, S. E. and S. Griffiths. 2012. "The Persistence of Mid-latitude Ground Ice on Mars (Past 1 Myr)". Oral session at Mars Recent Climate Change Workshop at NASA Ames, Mountain View, CA.
- Bapst, J.**, and S. E. Wood, 2012. "The long-term effects of surface frosts, seasonal atmospheric water variation and ice fraction-dependent thermal conductivity on Martian ground ice". Poster session at 43rd Lunar and Planetary Science Conference, The Woodlands, TX.

Bapst, J., and S. E. Wood, 2011. “Modeling of Martian subsurface ice in response to recent (≤ 1 Myr) orbital progression”. Poster session at 5th International Mars Polar Science Conference, Fairbanks, AK.

Bapst, J., and S. E. Wood, 2010. “Quasi-steady-state model of subsurface ice on Mars through obliquity variation”. Poster session at 42nd Meeting AAS Division of Planetary Science, Pasadena, CA.

Non-refereed Presentations

Bapst, J., 2018. “Exploring Mars’ Ice Sheets using TES and THEMIS”. THEMIS Team Meeting, Arizona State University, Tempe, AZ.

Bapst, J., 2017. “Thermal Properties of Martian Ice Sheets”. HiRISE Team Meeting, West Yellowstone, MT.

Bapst, J., 2017. “Temperature and Albedo of Martian Ice Sheets”. Icy Regolith Workshop, Green Bank Observatory, Green Bank, WV

Bapst, J., 2016. “Louth Crater Ice Mound Thermal Structure”. HiRISE Team Meeting, Desert Studies Center, Zzyzzyx, CA.

Bapst, J., 2015. “Modeling Louth Crater Ice Mound with TES and THEMIS”. THEMIS Team Meeting, Arizona State University, Tempe, AZ.

Bapst, J., 2015. “Louth Crater Ice Mound and Climate Change”. HiRISE Team Meeting, Mývatn, Iceland.

Bapst, J., 2013. “Seasonal Release of Water Vapor by Ground Ice on Mars: Implications for Surface Frosts and Atmospheric Water Abundance”. Poster session at 4th Annual University of Washington ESS Research Gala, Seattle, WA.

Bapst, J., 2012. “Recent Ice Ages on Mars (≤ 1 Ma)” Oral session at 3rd Annual University of Washington ESS Research Gala, Seattle, WA.

Bapst, J., 2012. “Steady-state water systems on Mars and consequences of extensive subsurface water reservoirs.” Oral session at 2nd Annual University of Washington ESS Research Gala.

Bapst, J., 2011. “Climate Change on Mars.” August 17th, 2011, University of Washington Astronomy Public Viewing Night, Jacobsen Observatory, Seattle, WA.

Bapst, J., 2011. “Steady-state water systems on Mars and consequences of extensive subsurface water reservoirs.” Oral session at 2nd Annual University of Washington ESS Research Gala, Seattle, WA.

Mission Involvement, Professional Service and Memberships

- CaSSIS Science Team Associate and Science Theme Lead (2017–present)
- HiRISE Team Affiliate (2014–present)
- Reviewer for Journal of Geophysical Research Planets and Icarus
- Served as Panelist and Executive Secretary on NASA Review Panel
- Member of American Geophysical Union
- Member of American Astronomical Society
- Member of Tau Beta Pi Engineering Honors Society

Awards and Fellowships

- NASA Earth and Space Science Fellowship (2012–2015)
- Best Poster in Modern Processes at 4th Annual ESS Gala (\$125)
- Chevron Field Camp Support (\$600)
- Best Oral Presentation in Planetary Science at 3rd Annual ESS Gala (\$100)
- SUNY Buffalo MAE Zimmer Summer Research Award (2009)
- SUNY Buffalo Scholar Award (2005–2009)
- SUNY Buffalo Engineering Dean's List (2007–2008)

Workshops / Short Courses

- Icy Regolith Workshop: Green Bank Observatory, Green Bank, WV (September, 2017)
- UW Astrobiology Workshop 2014: 3-Day Cruise off the coast of the Olympic Peninsula, WA (Northeast Pacific Ocean) aboard R/V Thomas G. Thompson
- JPL Planetary Science Summer School (June, 2014)
- NASA Astrobiology Institute Nordic Winter School: Hawaii (January 2014)
- UW Astrobiology Workshop 2013: Hell Creek, MT
- Astrobiology Summer School 2013: Santander, Spain
- UW Astrobiology Workshop 2012: NASA JPL, Pasadena, CA
- UW ESS Field Camp: Dillon, MT (3 weeks - June, 2012)
- UW Astrobiology Workshop 2011: Friday Harbor Laboratories, Friday Harbor, WA

Educational Outreach

- UA 2017 Solar Eclipse Public Event Booth at Flandrau Planetarium
- UA LPL Outreach at Pima Air and Space Museum (Night Wings)
- Pacific Science Center Polar Science Weekend 2014
- UW Earth and Space Sciences Rocking Out (outreach program)
- Volunteer at 2012 Emerald City Comic Con NASA Booth
- Volunteer at 2012 UW ESS Family Day
- Volunteer at UW Astronomy Public Viewing Night

Teaching Experience

- Graduate teaching assistant (University of Washington):
 - ESS 104 Prehistoric Life (Winter 2012)
 - ESS 102 Intro. to Space and Space Travel (Spring 2011, Autumn 2011)
- Undergraduate teaching assistant:
 - MAE 335 Intro. to Fluid Mechanics (Spring 2010, SUNY Buffalo)